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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,009	09/30/2003	Chien-Hsin Lee	INTCP001	4849

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EXAMINER	
GREY, CHRISTOPHER P	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/675,009	LEE ET AL.	
	Examiner	Art Unit	
	Christopher P. Grey	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Within the specification there is no **Summary of the invention** heading or description.

Appropriate correction is required.

Claim Objections

2. Claims 1 are objected to because of the following informalities: Claim 1 line 2 discloses IP as an abbreviation, however does not associate it with it's meaning. Suggested correction: IP (Internet Protocol).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 4-8, 12, 15, 16,18 are rejected under 35 U.S.C. 102(e) as being anticipated by Le Gouriellec et al. (US 2003/0112756), hereinafter referred to as Le Gouriellec.

Claim 1 Le Gouriellec discloses classifying each received packet in an IP/Ethernet **(para 0024 discusses Ethernet)** network into one of a plurality of quality of service (QoS) groups using information in a header of the packet **(para 0031).**

Le Gouriellec discloses measuring and checking a traffic rate profile of the received packet against a corresponding service level agreement **(para 0032, meter checks traffic profiles..).**

Le Gouriellec discloses marking the packet as one of an in profile packet and an out of profile packet **(page 3, para 0032, identifies packets as in-profile or out of profile, and para 0033, marker marks packet).**

Le Gouriellec discloses performing packet buffer memory reservation to guarantee memory space for an in profile CAR packets **(para 0025, always available due to end to end bandwidth reservation in the queues).**

Claim 4 Le Gouriellec discloses wherein said measuring and checking is via a token bucket model token **(para 0032, token bucket meter).**

Claim 5, 16 Le Gouriellec discloses a meter (fig 2, 44), which is a logical device **(para 0030, logical device equivalent to hardware).**

Claim 6 Le Gouriellec discloses wherein a CAR packet is an in profile packet if the CAR packet is within the corresponding SLA **(para 0037, all traffic within eh CR is left unmarked)** so that the CAR a packet receives congestion free service **(para 0039, unmarked traffic is protected even when congestion is encountered)** and wherein a CAR packet is marked as an out of profile packet if the CAR packet exceeds the SLA **(para 0037, all traffic above the CR but below the CR+ER is marked to be dropped in case of congestion)** and is one of provided with the best effort services and dropped **(para 0039, causing all marked packets to be dropped).**

Claim 7 Le Gouriellec discloses wherein said measuring and checking facilities in controlling CAR packets **(para 0025 discusses committed rate traffic)**, input rate limiting packets and output rate limiting packets **(para 0025, ER traffic indicative of input and output rate packets and para 0034 discloses traffic shaping, indicative of input and output rate packets).**

Claim 8, 18 Le Gouriellec discloses wherein IRL and ORL in profile packets receive best effort service **(para 0037, all traffic above the CR but below CR +ER is marked to be dropped in case of congestion)** and wherein IRL and ORL out of profile packets are dropped **(para 0038, traffic over CR + ER is discarded).**

Claim12 Le Gouriellec discloses a control pipe **(see fig 2)** configured to classifying each received packet in an IP/Ethernet **(para 0024 discusses Ethernet)** network into one of a plurality of quality of service (QoS) groups using information in a header of the packet **(para 0031).**

Le Gouriellec discloses the control pipe being further configured for measuring and checking a traffic rate profile of the received packet against a corresponding service level agreement **(para 0032, meter checks traffic profiles..).**

Le Gouriellec discloses marking the packet as one of an in profile packet and an out of profile packet **(page 3, para 0032, identifies packets as in-profile or out of profile, and para 0033, marker marks packet).**

Le Gouriellec discloses a transmit queue in communication with the control pipe **(fig 5, 106, queue**).

Le Gouriellec discloses performing packet buffer memory reservation to guarantee memory space for an in profile CAR packets **(para 0025, always available due to end to end bandwidth reservation in the queues).**

Claim 15 **Le Gouriellec discloses wherein said measuring and checking is via a token bucket model token** (para 0032, token bucket meter). Le Gouriellec discloses wherein said measuring and checking facilities in controlling CAR packets **(para 0025 discusses committed rate traffic)**, input rate limiting packets and output rate limiting packets **(para 0025, ER traffic indicative of input and output rate packets and para 0034 discloses traffic shaping, indicative of input and output rate packets).**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 9, 10, 19, 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Gouriellec et al. (US 2003/0112756).

Claim 9, 19 Le Gouriellec does not specifically disclose wherein said performing buffer memory reservation is via static memory reservation wherein memory space is statically partitioned between CAR packets and non-CAR packets.

However, Le Gouriellec discloses a buffer memory reservation scheme **(para 0025, end to end bandwidth reservation in the queues),** via a memory that is partitioned into a congestion area and a non-congestion area, where the congestion area is dedicated to committed rate packets **(para 0043).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the invention disclosed by Le Gouriellec to partition the memory into committed rate data and excess rate data. The motivation for this modification is to prevent congestion.

Claim 10, 20 Le Gouriellec does not specifically disclose wherein said performing buffer memory reservation is via dynamic memory reservation, wherein packet buffer memory for non-CAR packets is dynamically allocated, and wherein a push out mechanism is employed for non CAR packets.

However, Le Gouriellec discloses a buffer memory reservation scheme **(para 0025, end to end bandwidth reservation in the queues),** wherein packet buffer memory for non-committed rate packets is allocated dynamically in the non-congestion area **(para 0043)** and wherein a drop packet mechanism is applied to non-committed rate packets **(para 0028, discards traffic)**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the invention disclosed by Le Gouriellec so that memory is allocated dynamically, where the dynamic allocation allows the program to be flexible in terms of how memory is allocated. The motivation for this modification is to ensure that committed rate packets are not lost in congestion.

6. Claims 2, 3, 13, 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Gouriellec et al. (US 2003/0112756) in view of Li et al. (US 20070086337), hereinafter referred to as Li.

Claim 2, 13 Le Gouriellec discloses a control pipe **(shown in fig 1 and para 0025, node queues along the LSP pipe).**

Le Gouriellec does not specifically disclose wherein said classifying of the packet is performed by a control pipe via a content addressable memory.

Li discloses classification of a packet being perfumed via a content addressable memory (para 0074)

It would have been obvious to one of the ordinary skill in the art at the time of the invention to associate the content addressable memory disclosed by Li, with the

classifier disclosed by Le Gouriellec.The motivation for this combination is to perform classification and look ups.

Claim 3, 14 The combined teachings of Le Gouriellec and Li disclose a CAM for classification.

The combined teachings of Le Gouriellec and Li do not specifically disclose a multi-bank ternary CAM.

It would have been obvious to one of the ordinary skill in the art that the CAM disclosed by the combined teachings of Le Gouriellec and Li is not limited to a basic CAM, and may be specified such as that of a multi-bank ternary CAM depending on a designer's preference.

Claims 11, 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gouriellec et al. (US 2003/0112756) in view of Chen et al. (US 6226685), hereinafter referred to as Chen.

Claim 11, 21 Le Gouriellec does not specifically disclose wherein a separate multicast queue and a separate multicast threshold are defined for multicast packets, and wherein a multicast counter facilitates in tracking multicast packets.

Chen discloses wherein a separate multicast queue **(fig 3, 309)** and a separate multicast threshold **(Col 4, lines 47-50 when the counter value is expired)** are defined for multicast packets, and wherein a multicast counter **(Col 4 lines 14-17, generate a counter value)** facilitates in tracking multicast packets.

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the invention of Le Gouriellec so as to be able to handle multicast

packets, implementing a multicast queue. The motivation for this modification is to improve the efficiency of bandwidth utilization **(abstract)**.

Claim 22 Le Gouriellec discloses classifying each received packet in an IP/Ethernet **(para 0024 discusses Ethernet)** network into one of a plurality of quality of service (QoS) groups using information in a header of the packet **(para 0031).**

Le Gouriellec discloses measuring and checking a traffic rate profile of the received packet against a corresponding service level agreement **(para 0032, meter checks traffic profiles..).**

Le Gouriellec discloses marking the packet as one of an in profile packet and an out of profile packet **(page 3, para 0032, identifies packets as in-profile or out of profile, and para 0033, marker marks packet).**

Le Gouriellec discloses, for each profile packet pushing out queued non CAR packet if at least one of corresponding packet buffer memory and transmit queue is full **(para 0039).**

Le Gouriellec discloses queuing CAR packets into transmit queue memory **(para 0041).**

Le Gouriellec does not specifically disclose for a multicast packet, measuring and checking a multicast traffic rate profile of the received multicast packet using a corresponding multicast counter, marking each multicast packet as one of an in profile or out of profile packet, for each profile packet pushing out queued non CAR packet if at least one of corresponding packet buffer memory and transmit queue is full.

Chen discloses wherein a separate multicast queue **(fig 3, 309)** and a separate multicast threshold **(Col 4, lines 47-50 when the counter value is expired)** are defined for multicast packets, and wherein a multicast counter **(Col 4 lines 14-17, generate a counter value).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention that the invention of Le Gouriellec may be modified so as to deal with multicast packets in a separate queue as disclosed by Chen. The motivation for this modification is to improve the efficiency of BW utilization.

Claim 23 Le Gouriellec discloses dropping an out of profile packet (para 0028, discarded), where the preceding claim addresses multicasting packets.

Claim 24 Le Gouriellec discloses marking and queuing an out of profile CAR packet as a non CAR packet (para 0037).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 10AM-7:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on (571)272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher Grey
Examiner
Art Unit 2616

5/11/07

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